



ENGINEERS
AUSTRALIA

History of EMS Music Synthesisers continued

In 1971 EMS went into direct competition with Moog when Cockerell designed the Synthi 100. This system was mounted in a free standing console cabinet and were mainly sold to universities and radio stations, originally retailing for £6,500. The most famous model belonged to the British Broadcasting Corporation (BBC), Radiophonic Workshop. It was responsible for creating a large amount of widely heard and highly influential music for television such as the music for the infamous Dr Who series.

The Synthi 100 was the main synthesiser used throughout the 70s. One of the most important upgrades to the Synthi 100 was transforming it from an analogue into a hybrid system combining both analog parts and digital parts.

While EMS still exists today, the company never surpassed the glory days of the VCS3. However, one of its prominent designers, David Cockerell, certainly flourished and later worked on the Akai range of digital samplers.

Engineering Heritage Recognition Ceremony: Synthi 100 Music Synthesiser

Thursday 8 September 2016

Award of Engineering Heritage Marker



The ceremony on 8 September 2016 will celebrate the award of an Engineering Heritage Marker to the Synthi 100 no. 3010.

Images: The University of Melbourne and Owen Peake

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Co-hosted with:



The University of Melbourne
Victorian College of the Arts &
Melbourne Conservatorium of Music

The Synthi 100 no. 3010 is one of only three such machines still functioning worldwide.

There is only one key variable in music production as important, and as ubiquitous, as the natural human voice: the synthesiser.

The underlying basic concept is simple enough; an electronic circuit generates a tone, and the tone can then be controlled by any kind of selected input, human or otherwise. It is an axiom that has provided the backbone for countless electronic instruments over the last century. Consequently, it has influenced the direction of modern music both in the mainstream and in the underground.

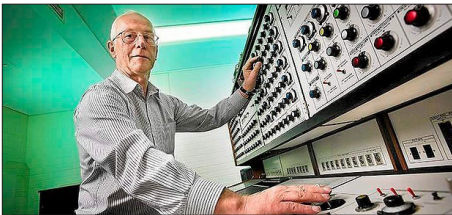
To this day, the exemplary harmonious unison between the musical artist and their synthesiser epitomises a most constructive bond between man and machine.

The Melbourne Conservatorium of Music Synthi 100

The Electronic Music Studios (EMS) Synthi 100 music synthesiser at the Melbourne Conservatorium of Music was built in 1972. This machine, Synthi 100 number 3010, was the tenth synthesiser made by EMS, who manufactured around 30 in London.

Weighing in at 190kg and prewired to interface with a DEC PDP-8 computer the Synthi 100 was the largest and most technically advanced analogue synthesiser in the early seventies.

The instrument includes a range of 20 voltage-controlled oscillators (twelve main oscillators and eight filter oscillators), three ring-modulators, a random voltage generator, a pitch-to-voltage converter, three slew limiters, and a 'duophonic' double keyboard.



Leslie Craythorn with the Synthi 100 at the Melbourne Conservatorium of Music

Image: The University of Melbourne

The 256 event digital sequencer has three layers; with each layer containing two control voltage outputs and a key. There is a total of six control voltages and three key outputs.

In 2014-15 the instrument was restored to its original form by Melbourne Conservatorium of Music Technical Officer, Leslie Craythorn.

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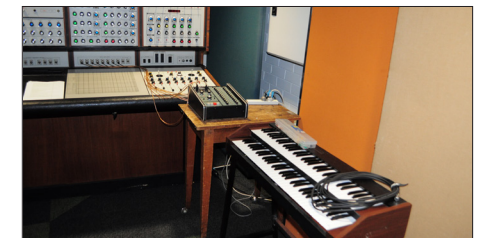
The early 1970s saw a significant evolution in the technical aspects of music synthesis. The two primary entities who pioneered in the field of analogue music industry were EMS in the United Kingdom and Moog Music in the United States of America.

Miniature models of analogue synthesisers had grown in sophistication and size until this evolution culminated in the design of complex powerhouse modular synthesisers such as the Synthi 100.

In 1965, Dr Peter Zinovieff founded synthesiser company, EMS. He set up the studio in the back garden of his home in Putney, London. EMS was the hub of activity for electronic music in the UK during the late sixties and seventies with involvement from composers such as Harrison Birtwistle, Tristram Cary, Karlheinz Stockhausen and Hans Werner Henze.

Running EMS privately was expensive and Zinovieff found himself running into financial difficulties. He decided that the company could be saved by creating a commercial, miniaturised version of the studio.

EMS produced its first commercial and affordable synthesiser (VCS1) in 1969. This synthesiser was designed by David Cockerell. The VCS1 was soon followed by the VCS3. Also designed by Cockerell, VCS3 had three oscillators and a unique matrix-based patch system. The VCS3 was intended as a music box for electronic music composition.



A keyboard and a portable synthesiser connected to the Synthi 100 as input devices

Image: Owen Peake

The VCS3 and a portable version of this instrument, Synthi A, were also widely used for education. EMS also created Synthi-E, a simplified version specifically for the educational market, and published tutorial handbooks explaining their facilities in a highly systematic manner.